SCIENCE & GOVERNMENT REPORT

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Defense Labs Expand Role in Civilian Research

While the Defense Department issues ominous warnings that the Soviets are outspending the US in military research, it has quietly organized 30 of its major laboratories into a Technology Transfer Consortium for the specific purpose of selling research services to state and local governments and civilian federal agencies.

The current volume of business is relatively small in terms of DOD's multi-billion-dollar research budget, but the Consortium's growth rate would cause drools on Wall Street. Starting at near zero in 1971, it did about $10 million dollars worth of sales last year; this year, the volume is expected to exceed $15 million, and, according to minutes that SGR has obtained of a Consortium meeting Nov. 13-15 in San Diego, the DoD chief of research, Malcolm Currie, "has approved of (sic) the Consortium doubling present efforts. . ."

Responsibility for coordinating the Consortium is housed in the National Science Foundation, but the task is specifically entrusted to a career DoD weapons engineer, Harold Metcalf, on loan from the Naval Weapons Center, China Lake, Calif. Metcalf's salary is paid by the Navy, but bearing the title of Program Manager, Federal Laboratory Liaison, he reports to the director of NSF's Office of Intergovernmental Science and Research Utilization.

Metcalf's monthly progress reports to his director, M. Frank Hersman, indicate that he has indeed been busy in his efforts to couple the defense laboratories and civilian markets. Thus, his most recent report, covering last November, states, for example:

"Initiated negotiations on an Interagency agreement between the National Institute of Law Enforcement and Criminal Justice and one of the DoD R&D Consortium laboratories, the Naval Underwater

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Chicago Offers Faculty Free as Advisers to Press

In what may be an unprecedented public relations brainstorm in academe, the Office of Public Information of the University of Chicago has distributed nationwide to news organizations some 2000 copies of a booklet listing over 500 faculty members who, it is suggested, are available to help reporters seeking specialized information.

Since the faculty members were not consulted as to whether they wish to be on tap as reportorial sources, the booklet's introduction advises that there is no "guarantee that everyone listed in it will be willing to talk at any time about any subject." But it goes on to state that "it is a good list, for all that . . . Go fishing in it; it is a rich pond."

The entries are listed by specialty, academic title, and office telephone number. For after hours, home telephone numbers are given for the staff members of the Office of Public Information, with the implication that they'll rustle up whatever expertise is required, regardless of the hour.

Thus, if a member of the Fourth Estate is in quest of information on "Body Language," he is advised to contact Dr. Jarl E. Dyrud, professor and director of clinical services, Department of Psychiatry.

If the problem concerns "Circuses, Fairs, and Crowds, the man to check with is Professor Neil Harris, Department of History.

On matters involving "Creative Writing," the recommended expert is Saul Bellow.

In Brief

Latest bit of bureaucratic jargon on the Washington scene: "Validate the option," as in "Validate the nuclear option," which means prove the value of nuclear energy.

A national opinion survey conducted for the Environmental Protection Agency found that "Only 10 percent of the people can name the US Environmental Protection Agency unaided. When the agency's name is mentioned, another 48 percent indicate that they have heard of it. . . .Forty percent of the people who are aware of EPA say they know 'almost nothing' or 'nothing at all' about the agency."

Federal R&D expenditures may be shifting from national security to civilian purposes, but the balance has swung far less than is generally believed. According to the latest Battelle-Columbus report on *Probable Levels of R&D Expenditures in 1974,* **"Of the total dollar increase in Government R&D obligations from fiscal 1960 to 1974, about 65 percent still goes to DoD, NASA, and AEC."**

Those power "saving" voltage cuts that are in style with hardpressed power producers around the country save little, if any power, and may actually increase consumption, according to Gerald L. Wilson, director of MIT's Electric Power Systems Laboratory. Heating and cooling systems, he reports on the basis of tests, compensate for voltage reductions by running longer or drawing more electricity.

A Voice from the Grave: PSAC Chemicals Report Emerges

Although the President's Science Advisory Committee (PSAC) was abolished early last year, its death rattles have not been completely stilled. A long-simmering PSAC report on *Chemicals & Health*, which has been wending its way through the federal bureaucracy for more than a year, was finally released at a Jan. 9 press conference held in the National Science Foundation, whose director, H. Guyford Stever, has inherited many of PSAC's duties.

The report is billed by some of its authors as the broadest look yet at the complicated subject of regulating chemicals in a "balanced" way so that their beneficial effects can be enjoyed while their threats to health are minimized. It contains a slew of recommendations aimed at everyone from Congress to various regulatory agencies to scientific societies to the press. It also contains a chapter on the problems of measuring health, as well as chapters analyzing various economic, regulatory, and risk-benefit issues. Among other controversial conclusions, it disputes contentions that regulatory activity has seriously impaired innovation.

The report, which was written by a subpanel of PSAC headed by Princeton statistician John W. Tukey, focuses its attention on medicines, agricultural chemicals, food additives, household and industrial chemicals, and various pollutants of air and water. It is available for $2.75 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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Systems Center, Newport, Rhode Island. This agreement will provide a mechanism for making the technology from defense laboratories more accessable to the NILECJ. . ."

Metcalf's October report tells of a visit to Kirkland Air Force Base, Albuquerque, New Mexico, "in response to an invitation from the Chairman of the Air Force Technical Management Council to speak to the Council on the Federal Laboratories Technology Transfer Program." Metcalf reports that he briefed the Council on a study produced by the Air University, *Air Force Technology Transfer for Non-Defense Needs*, and goes on to note that "After the briefing the Chairman appointed a committee headed by Dr. Gobleman, chief scientist, Rome Air Development Center, N.Y., to develop a policy statement recommending a more active program by the Air Force."

Another October entry: "At the suggestion of Dr. Jay Lawson, director of Naval Laboratories, the DoD Consortium has established a direct link with the Navy Science Assistance Program. This program is a mechanism for providing a quick response to problems that are identified by the Fleet requiring Navy Laboratory technical assistance."

Though the Consortium can justify its existence on the basis of President Nixon's 1972 Science and Technology Message, which called for broader utilication of the products of federal research, it nevertheless exists in a twilight zone of law and public policy, and, accordingly, tends to be a bit nervous about its venture into the civilian economy. Looming over it, of course, is the Mansfield Amendment, which prohibits DoD from supporting research not directly related to military purposes. The legal stratagem for evading the clear intent of this legislative directive is to require that the customer bear the cost of the research. And to counter questions of why, after all, are the supposedly hardpressed DoD laboratories concerning themselves with streetlighting problems and other purely civilian matters, DoD put out a Policy Memorandum in 1972 that attempts to cover all contingencies. Thus, it states that civilian work must not impede military work and that the "focus of the DoD Technology Transfer Program is on the transfer or adaptation of *existing* (original italics) technology—technology which the taxpayer has already paid for. It is inappropriate for the DoD Laboratories to compete with industry for new research and development." The judgment process, however, is left to the DoD laboratories, and in few, if any cases, is a civilian research contractor going to have an opportunity to enter a competing bid when a Consortium laboratory links up with a state or local government for a specific job.

Nevertheless, the Consortium members appear to be eager to kick over even the light restraints that now exist. According to the minutes of their San Diego meeting, "The Science and Technology Policy Office (of the National Science Foundation) was tasked (sic) to analyze the role of the Federal Laboratories and their parent agencies in the technology transfer process. If legislation is required to more effectively use the Federal laboratories, then the position taken must be thoroughly studied. . .It does appear possible that executive legislation may some day remove some of the major barriers in the DoD technology transfer effort."

A covering letter to the minutes, signed by George F. Linsteadt, head, technology utilization office, Naval Weapons Center. urges the members of the Consortium to apply caution to their expansionist policies. ". . .remember," he states, "the appropriateness criteria in our operating policy must be strictly adhered to. Now is not the time to make trouble for ourselves by going against our own policy."

NSF Advisory Office: Keeping the Seat Warm

In his role as Science Advisor to a President who is yet to show a yen for science advice, NSF Director H. Guyford Stever is putting together a supporting staff that will eventually number 18-20 professionals gathered in what is known as the Science and Technology Policy Office (STPO). Questions to the effect of, "What in the world will they do?" being commonly heard around Washington, SGR has inquired, and can report the following:

STPO, headed by a retired career Navy captain, Russell C. Drew, who once did time with the White House science office that Nixon demolished last January, is preparing, *inter alia*, to expand the throngs that have latched onto a number of fashionable subjects at the so-called interface of science and public affairs. Whereas the predecessor organization, the Office of Science and Technology, used to get it for cheap by luring highclass young talent to Washington to work as coolie-wage consultants in the shadow of the venerable membership of the also-now-defunct President's Science Advisory Committee (PSAC), STPO has $1 million from Congress for the contracting of studies. As outlined in an interview with Director Drew, this sum will underwrite an assortment of inquiries.

One of them will be in the field of "technical forecasting and modeling," with the objective being "an expansion" of the techniques that were employed in *Limits to Growth*. There will also be studies of "world food supply and demand," plus a study of the science policy studies produced at various academic centers, MIT, Cornell, and the University of Oklahoma being specifically mentioned by Drew. The purpose, he explained, will be to assess what has been learned about certain science policy problems, with technological transfer high on the list.

Then there are to be studies of materials, which is getting to be quite a growth industry itself as the US runs short on one thing or another, and, in addition, STPO will delve into "scientific communication."

Since these studies are to be contracted to outside organizations, there still remains the question of what those 18-20 professionals will do. Part of the answer, of course, is that they will formulate the problems that are to be studied, help select the contractors, and monitor the results.

In addition, the staff has other responsibilities. Drew said that though STPO came into existence just last August, which is late in the annual federal budget cycle, its advice was sought by the Office of Management and Budget (OMB) on the appropriation requests of a number of R&D agencies, including NASA and NIH. (The question of whether his office would be called upon to comment on the budget of its parent agency, NSF, did not arise this year, he explained, since the NSF budget went through OMB in written form without the courtroom-style hearings that are often employed for budget review.)

Following are the staff members of the Science and Technology Policy Office, their areas of responsibility, with most recent former place of employment in parentheses.

Russell C. Drew, director, (head, Office of Naval Research, London)

Hylan B. Lyon Jr., liaison with Defense Department and National Security Council, (ONR scientific officer for aircraft instrumentation)

S. Victor Radcliffe, materials science, (Case Western Reserve University)

Thomas C. Wellington, intergovernmental science and technology, technology transfer (IBM).

F. Gilman Blake, earth, atmospheric and ocean sciences, (Office of Science and Technology)

Ernest F. Powers, social sciences, transportation, housing, (Office of Economic Opportunity).

A. Wade Blackman, modeling and forecasting, patents, standards (United Aircraft Corporation)

Douglas N. Howe, administration, (OST)

James E. Carpenter, industrial R&D, stimulating innovation, (Commission on Government Procurement)

Edward J. Burger Jr., health care, biomedical R&D, (OST)

The following positions are vacant, though in some cases arrangements are near completion for appointments:

Deputy director, "health of science"

Health of science, academic research

Executive Secretary for the Federal Council on Science and Technology.

World food and agricultural productivity

Life sciences and environmental R&D

Communications planning.

The organization plan that established STPO specified that, unlike its predessor, it is to stay out of national security affairs unless invited in. Drew said that the one request so far involved an examination of the relationship of civilian and military weather satellites, but he wouldn't reveal the results.

Now, it will be noted that nothing has been said of energy. All that Drew would say on this is that "we have been peripheral to the subject so far."

Perhaps the best assessment of STPO's place in the current scheme of things in Washington is that, as advisor to the Advisor of a comatose Administration, it is performing a valuable function by merely keeping alive the idea that the US Government should be equipped with science advice. However, buried deep in NSF, and lacking the bullying power that OST possessed simply because of its linkage to the White House, it is not likely to wield any great influence. But following the next presidential inauguration, STPO is likely to be a building block for a more substantial scientific presence in government affairs.

Agriculture Gags on Critical Review of Research

That blistering critique of agricultural research issued by the National Academy of Sciences more than a year ago appears to have disappeared into the bowels of the Agriculture Department, leaving anger and resentment as its major legacy.

The critique, which was prepared by a 19-member committee headed by Glenn S. Pound, dean of the College of Agricultural and Life Sciences at the University of Wisconsin, charged that there is "a shocking amount of low quality research in agriculture," both within the Agriculture Department's own labs and at the land grant schools and state experiment stations. It charged that agricultural research is of poor quality compared to the research supported by NSF and NIH; that the Agriculture Department has failed to support crucially important basic research; that some agricultural researchers exhibit "low ability;" and that various management policies exert "repressive effects" on the quality of science. To drag agricultural research out of its "stagnation," the committee made some 20 recommendations, ranging from peer review of research projects to better management. (See SGR, Vol. III, No. 1.)

What effect have those recommendations had? SGR made inquiries at several levels of the Agriculture Department and could find no evidence that the Department is making any systematic effort to implement the Academy's advice. The Agricultural Research Policy Advisory Committee (ARPAC), a group containing representatives from both the Agriculture Department and the land-grant schools, reviewed the Academy's recommendations in early 1973. It concluded that many of the recommendations were sound but that the Agriculture Department was already pursuing most of them to one degree or another.

ARPAC made its own suggestions as to what action should be taken on the basis of the Academy report. But, according to David Ward, the veteran government official who currently serves as executive secretary of ARPAC, the Agriculture Department has made no formal analysis as to just what is being done at various levels of the Department in reaction to the various recommendations.

Ward even suggested that the Academy report may have had a counterproductive effect in the sense that its unusually harsh language stirred resentment, causing many agricultural scientists and administrators to adopt a defensive stance and ignore the Academy's recommendations.

Other Department sources suggested that the report had actually harmed agricultural research since it was used by the Office of Management and Budget as one of the justifications for cutting funds to the state research apparatus in fiscal 1974. "That didn't set well with either the states or the Department," one official said. "They were up in arms over the report."

So does that mean the report will have no effect? Not at all, says Ward. The report is filtering through the agricultural community, it has attracted a lot of attention, and as tempers cool, those portions of the report which have merit will undoubtedly have an impact on policy, though any given administrator may be slow to admit it. In some cases, such as peer review, subunits of the Department are already experimenting with changes.

. . . But Peer Review Gains

Peer review is slowly gaining a toehold within the Agriculture Department, where it has seldom been used as a standard means of evaluating the worth of research projects.

The northeastern region of the Agricultural Research Service (ARS), one of the major research subunits of the Department, adopted a new policy late last year which requires peer evaluation of all new in-house research projects proposed for inclusion in the Department's Current Research Information System. These are projects that are headed by a principal investigator and are roughly on the same scale as individual projects funded by NSF or NIH. The peer review applies only to in-house research, which constitutes the vast bulk of ARS work. Extramural grants are processed through a separate mechanism.

Greater use of peer review has been recommended by a number of bodies, including, in recent years, the Pound committee of the National Academy of Sciences; the Agricultural Research Policy Advisory Committee, representing the land-grants schools and the Department; and the House Appropriations Committee. The thrust of these recommendations was that the Agriculture Department, which has traditionally relied heavily on in-house administrators and scientists to evaluate projects, could benefit by drawing on advice from a broader slice of the scientific community.

The move toward peer review was initiated by Steven King, deputy ARS administrator in charge of the northeastern region, even before most of the recent recommendations for peer review were promulgated. In 1971 and 1973, King implemented forms of peer review for the so-called Work Reporting Units, which are large blocks of research directed toward a broad technological problem, such as soybean production. But evaluation at that level proved unsatisfactory for a number of reasons,

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State Department Setting Up New Science Office

With evident distaste, the State Department is slowly responding to a congressional directive to establish a departmental Bureau for Oceans and International Environmental and Scientific Affairs, with an assistant secretary at the head.

The directive, contained in the Department's annual authorization bill, which passed Oct. 18, merges a desire by Senator Claiborne Pell (D-R.I.) to equip the Department with a Bureau of Oceans, and Senator Howard H. Baker Jr. (R-Tenn.) to set up a Bureau of Environment. The Department's lack of interest in both subjects probably is exceeded only by its aversion to Congress dictating its internal organization, but the legislative desire is now written into law, and the Department's Office of Management has worked out a draft plan that is now making the rounds.

Basically, the plan calls for using the Office of International Scientific and Technological Affairs—State's principal organizational entity in the technical area— as a centerpiece to which would be affixed various other functions covered by the congressional command, such as the special assistantship for fish and wildlife, whose existence is one of the Department's best kept secrets.

Not yet settled is the question of who will take on the newly created post of assistant secretary. Situated at the third level of the Department, the assistant secretaryships have in recent years been limited to a total of a dozen or so. When Herman Pollack, the current chief of International Scientific and Technological Affairs, took the job it was proposed that he be given the title of assistant secretary, but the Department, jealous of its rankings, responded by ruling that for protocol purposes he would be considered an assistant secretary, but he could not have the title.

The final decision on the reorganization is up to Secretary of State Kissinger. Since he is busy with other matters these days, and Congress set no deadline for the change, it may be some time before the new bureau is formally established.

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including the fact that the large units were already funded and couldn't easily be shut down or redirected if the reviews should be negative.

So last fall the focus was shifted to the individual work unit at the stage where the investigator is requesting approval of his project. Under the new procedure, the scientist proposing a project submits a list of five scientists he considers peers competent to evaluate the research. The peers can be employed within the Department or elsewhere, but the regional headquarters recommends that at least two come from outside. An area director then forwards the proposal to the five nominees or to such other peers as he deems appropriate, and the results of their reviews are used as the proposal passes up the administrative chain for approval.

The peers are asked to rate the project on the basis of the value of its objectives to science and technology, the adequacy of the experimental plans, the value of the expected results for the resources expended, the extent to which it duplicates other research, the urgency of the problem, and the worth of the likely findings to the public. They do not evaluate the competence of the investigator to carry out the proposed project, although that evaluation is presumed to be inherent in the other rating categories.

King told SGR his region is the only one in ARS to implement such a peer review mechanism, but if the concept proves successful it will presumably spread to other regions.

Howls of Rage at Ag Report

Some idea of the hostility generated by the Academy report on agricultural research can be gleaned from a speech made last fall to the Academy's Agricultural Research Institute by Roy M. Kottmann, dean of the College of Agriculture and Home Economics at Ohio State University.

Kottmann charged that the Academy report was marred by "major weaknesses and inconsistencies," that it contained "destructive generalities" which "greatly reduced the usefulness of what otherwise might have been a constructive study and a genuinely useful report," and that it offered "far too little evidence" to back up its sweeping condemnations. Moreover, he suggested, the majority of the committee was "badly used" by individuals who "evidently brought their biases with them," including some who showed an "obvious mania for discrediting the USDA."

The end result, Kottmann said, was that the committee "failed to reach conclusions which reflect the actual practices and policies of the USDA and the State Stations." Instead it published a report full of "verbiage which is demeaning, inciteful, or subject to misinterpretation and misuse by overzealous journalists." (Both *Science* and SGR were cited as examples of publications which had allegedly emphasized the destructive comments in the report.)

Calling it "unfair and unwise" for the Academy to criticize agriculturalists "who have been responsible for doubling, tripling and in some cases, quadrupling, crop yields," Kottmann said the report taught him much more about the "personalities and biases" of the committee members than it did about substantive issues of the research programs.

HMO Legislation May Reshape American Medicine

The most significant health legislation of the 1973 Congressional session was signed into law by President Nixon on Dec. 29. It authorizes a federal program to foster development of health maintenance organizations (HMOs), a form of medical care that could spark profound changes in the shape of American medical practice and of medical schools as well. Already one-third of the nation's medical schools are involved with or planning to establish an HMO.

The amount of money authorized to assist the formation of HMOs—$375 million for a five-year experimental program—was small in comparison to plans originally espoused by political leaders. The Nixon Administration had once pledged to put an HMO within reach of 90 per cent of the population by 1980, with the expectation that some 40 million Americans would enroll, and the Senate actually approved a $5.2-billion, three-year development program for HMOs in 1972.

But by the time the American Medical Association had finished twisting arms in the Executive branch and Congress, the scale of the program had shrunk considerably, and the rhetoric surrounding it emphasized that the program was intended to demonstrate the value (or lack of value) of the HMO approach; it was not intended to launch the nation on a pell-mell race to put an HMO on every corner.

HMOs have been around for a long time—more than 40 years in some cases—but they have never made a significant advance into the American medical scene at least partly because of the opposition of organized medicine. According to figures released by HEW, there are currently about 125 HMO-like organizations in operation in this country, serving a combined enrollment of from 5 to 6 million members, less than 3 per cent of the population. The oldest, best-known and by far the largest of these are the 2.5-million-member Kaiser Foundation plans, centered on the west coast with outposts as far-flung as Cleveland and Hawaii.

HMOs come in a bewildering variety of shapes and sizes. They can be organized by consumers, physicians, medical societies, hospitals, medical schools, insurance companies, or corporations. Some own their own hospitals; others contract for hospital services. Some pay closed panels of physicians to serve full-time on the HMO staff; others use coalitions of private practitioners to perform HMO services alongside their traditional practices. Some operate for profit; some are non-profit.

But the crucial feature of an HMO is that it involves a prepaid contract for health services. The member pays the HMO a fixed annual fee, usually on a monthly basis, and in return the HMO agrees to provide a stated range of health services, everything from routine checkups to complicated surgery. This prepayment arrangement is said to give the HMO an economic incentive to keep the patient healthy and out of the hospital, for if the patient incurs substantial medical bills, the profit, or surplus, of the HMO is diminished.

The possibility that this economic incentive might also lead HMOs to cut corners and refuse to provide needed services to their members is a point frequently raised by critics, but the latest evidence, compiled by the Institute of Medicine of the National Academy of Sciences, indicates that the quality of HMO care compares favorably with that delivered by traditional medicine.

The goal of the legislation just enacted is to remove some of the financial and legal blocks which have inhibited the spread of HMOs. On the financial side, in an effort to alleviate the sizable startup costs for an HMO, the bill authorizes a variety of grants, contracts, loans and loan guarantees for feasibility studies, planning, and initial operating costs. The direct assistance would be available to public and nonprofit entities; profit-making groups would be limited to loan guarantees, and they could get those only if they enroll medically underserved populations.

Perhaps the most significant parts of the legislation, however, are two provisions that should increase the ability of HMOs to penetrate the

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HMOs Receive Good Marks

How well HMOs perform is a matter of some dispute, but an upcoming report from the Institute of Medicine of the National Academy of Sciences will argue that they have compiled a favorable record.

The report, which has been in preparation for the better part of a year, will not be issued for another month or so, but a hint of its conclusions can be gleaned from a speech last November by Karl Yordy, the staff officer for the project.

Yordy said the committee which authored the report reviewed the extensive literature on HMOs and concluded that "the evidence about HMO performance is favorable." The committee found "no evidence that HMOs have provided a poorer quality of care than the rest of the system," as is sometimes alleged. It also found that "the levels of satisfaction of physicians working in prepaid group practices are high," and that patients enrolled in such practices "show an average of about 20 percent less hospital utilization per capita adjusted for age and sex."

However, the committee found no evidence that HMOs save money because of economies of scale or organizational efficiencies, as is often claimed.

As for consumer acceptance, the committee said some HMOs "have been able to expand and prosper in situations of dual choice."

Legislation Drafted to Speed Nuclear Power

When Congress reconvenes next week, a quietly assembled alliance of atomic power proponents will make a major effort to neutralize the web of environmental legislation that in recent years has stalled the construction of nuclear plants throughout the country.

Legislation to this effect is scheduled to be introduced on the first day of the new session by Rep. Mike McCormack (D-Wash.), who is a member of the Joint Committee on Atomic Energy (JCAE) and chairman of the Subcommittee on Energy of the Science and Astronautics Committee.

The legislation announced by McCormack is being prepared in consultation with what turns out to be two of the most gung ho advocates of nuclear power on the national scene, former AEC Commissioner James T. Ramey, who is a consultant to the JCAE, and Gene Blanc, chief of the Agreements and Exports Branch of the AEC's Directorate of Licensing. McCormack states that "We are also working with representatives of the new Federal Energy Office and with utility and environmentalist groups," but Blanc, he stated, "has been assigned responsibility for the project."

The focal point of the legislation is siting authority, which has been particularly vulnerable to environmental challenge under the National Environmental Policy Act (NEPA). McCormack's announcement said that the aim is to "streamline the current procedures" by, among other things, enlarging the local role in approving sites and "encouraging AEC to modify its complicated hearing process." Both steps, of course, would reduce the NEPA cover that has proven so useful for ambushing nuclear ambitions.

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medical marketplace. One provision—opposed by both the AMA and the Nixon Administration—overrides certain state laws that have restricted the development of HMOs. Some of these laws, for example, have required that HMOs get approval from the local medical society before furnishing health services, which is a bit like asking the local Gulf station owner to approve the opening of an Exxon station next door. The second provision requires employers to offer an HMO option if they offer a traditional health benefits plan for their employees. Both provisions will assist only such HMOs as meet the rather stiff service and organizational requirements set forth in the legislation, but they should give many HMOs a substantial shove into the market.

The trend toward HMO development could have a profound effect on academic medicine. The Association of American Medical Colleges polled 109 academic health centers during the summer of 1973. Of the 105 which replied, there were 16 that were already sponsoring or affiliated with an HMO and 18 that were planning to start one, while another 24 were giving "serious consideration" to the possibility of establishing an HMO. Only 47—less than half the sample—projected no involvement in HMOs.

The chief factors motivating medical schools to launch HMOs are a desire to develop better programs of primary care and comprehensive care, to prepare students for possible employment in a greatly expanded HMO network, and to provide health services to the community.

How many HMOs will be launched in the near future is a matter of speculation. HEW officials estimate that perhaps 300 to 400 more HMOs will be started over the next five years with some form of federal assistance, and that an equal number could conceivably be launched without federal aid. The trend will be assisted by the fact that whatever national health insurance bill passes Congress in the near future is almost certain to allow patients to use their insurance to join HMOs.

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Energy Advisers Call for Shift in R&D Emphasis

The Energy R&D Advisory Council, the nation's top advisory group for energy research programs, has concluded that the Nixon Administration's preliminary plan for a $10-billion, 5-year research effort puts too much emphasis on fusion and too little emphasis on conservation and basic research.

That sentiment was conveyed to Energy Czar William Simon in a memorandum from NSF Director H. Guyford Stever, who chairs the advisory group of experts from industry, the academic world, and national laboratories. The memorandum summarized the comments of the advisory group on a preliminary plan for spending the $10 billion. The plan was developed by a task force under Dixy Lee Ray, chairman of the Atomic Energy Commission, at the President's request.

The Council by and large agreed with the program balance recommended by Dr. Ray (SGR, Vol. III, No. 21) with three major exceptions:

First, it concluded that there was "excessive" funding emphasis given to development of controlled thermonuclear fusion, which is often viewed as something of a panacea by environmentalists seeking a clean and abundant source of power. The Council judged that fusion, while offering "great future potential," is "unlikely to contribute to energy supplies before the year 2000 and thus its development must be considered less urgent than shorter range R&D programs, for example, in coal and conservation." The Council also questioned whether enough qualified personnel could be devoted to the projected fusion program "without adversely affecting more urgently needed nuclear programs in fission."

Second, the Council found that "the funding emphasis given to the R&D program in conservation, and especially that directed at reducing consumption, is insufficient." It based this determination on a "realization that, in the next few years, the only avenue available for reconciling energy supply and demand is through reduction in energy consumption, especially through improvements in efficiency of utilization."

Third, the Council concluded that the funds recommended for basic research and for building the base of technical manpower were too low, "perhaps by as much as a factor of two." It expressed "great concern" that much of the money aimed at basic research and training, as well as at studies on the environmental effects of energy production, is not contained in the main body of the Administration's $10-billion program but is segregated in a separate $1-billion supplement program, introducing the danger that "these vital R&D programs may be construed as being less essential than those items in the basic $10-billion program."

On other matters, the Council reiterated that the proposed R&D program "by itself, would not result in self-sufficiency by 1980 or even 1985." It recommended "high funding" for policy analysis; accelerated exploration for oil and gas on the outer continental shelf; and a shift in the funding proposal for environmental R&D so that more of the work is done immediately and less in later years. Because the private sector is unlikely to conduct adequate environmental research, the Council suggested that a national laboratory be established to analyze the environmental effects of increased energy use.

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